

# EASE OF TRANSPORTATION AND WOMEN'S EMPLOYMENT IN INDIA

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Photo: Courtesy Amit Thorat

India has one of the lowest levels of female labor force participation (FLFP) among developing countries. According to the National Sample Survey (NSS), in 2011-2012, the FLFP rate was 35.8% in rural areas and 20.5% in urban areas (Andres et al. 2017). Women's employment is also disproportionately concentrated in the agricultural sector. In rural India, while 37% of male workers were employed in the non-farm sector, only 20% of female workers undertook non-farm jobs according to the 2009-10 NSS (Jatav and Sen 2013). Much of this agricultural employment for women tends to be on the family farm and does not result in independent income. Non-farm employment, on the other hand, it contributes to women's control over resources and decision-making power.

Although prior research has examined the role of individual demographic characteristics, education, culture, labor policy, and labor market characteristics in shaping FLFP, little is known about how economic development policies, such as investments in transportation, infrastructure, influence women's labor market activities.

To address the poor rural transportation conditions in India, the government launched the national rural road construction program—the Pradhan Mantri Gram Sadak Yojana (PMGSY)—in 2000. Previous studies found that the construction of highways and railroads increased agricultural trade and income, boosted local market development, and relocated laborers from agriculture to the non-agricultural sector (Asher and Novosad 2016; Donaldson 2018; Mu and van de Walle 2011). Less is known about the economic effects of smaller-scale roads and bus services and about the possible gendered nature of these effects. We would expect improved local transportation to increase women's non-farm employment by increasing access to both local and external job opportunities, reducing time spent in domestic drudgeries, and possibly by introducing more egalitarian gender attitudes.

Lei, Desai and Vanneman (2019) use longitudinal data from two waves of the Indian Human Development Survey (IHDS) in 2004-05 and 2011-12 to ask three questions: 1) how do changes in rural transportation infrastructure influence women's non-agricultural employment in India? 2) Do improvements in rural transportation infrastructure reduce the gender gap in non-agricultural employment? 3) Does the effect of transportation infrastructure on women's employment vary by communities' gender context?

We analyze the employment status of rural women and men between ages 25 and 60 years using a time-varying categorical variable that contrasts agricultural employment and non-agricultural employment to not working for pay. The two focal independent variables are village road conditions and the frequency of bus services. The village road condition variable has three categories, including no access by road, access by katcha (unpaved or dirt) road, and access by pucca (paved) road. The frequency of bus services in the village is categorized into once a day, 2-6 times a day, and 7 or more times a day, contrasted to no bus services. Communities' gender context is measured by the proportion of women practicing female seclusion or purdah. We estimate person fixed-effect multinomial logistic regression models to predict the employment sectors of women and men separately and to investigate the interactive effects between transportation infrastructure and communities' gender context.

Descriptive statistics show that between 2004-05 and 2011-12, rural women employed in the non-

While changes in societal gender norms are important, the much lamented low female labor force participation rate in India may nevertheless respond to simple practical policies like providing better transportation infrastructure to enable women to travel to and from non-farm work.

agricultural sector increased from 10% to 18%, while the proportion of rural women not working or working in the agricultural sector both declined. This transition from the agricultural to the non-agricultural sector is also observed among rural men during the seven-year period.

The regression analyses suggest that gaining access by pucca and Katcha roads and an increase in bus frequency in a village improve both women's and men's non-agricultural employment. Besides, improvements in road conditions boost the non-farm employment of women more than that of men, thereby reducing the gender gap in non-agricultural employment in India. We also find that improvements in road conditions and bus services lead to smaller increases in women's non-agricultural employment in communities where the practice of purdah (female seclusion) is more prevalent. This means that in communities where women's physical mobility is restricted by gender norms, women are less likely to take on non-farm jobs even if transportation becomes available.

The findings of this study have important policy implications. First, while scholars have tried to explain the recent decline in FLFP in India by the low supply of and demand for women's labor, we substantiate the demand-side explanation by showing that rural transportation infrastructure affects non-farm job opportunities available to rural women. Our results suggest that rural women in India would take up non-agricultural jobs within and beyond the communities if easy transportation were provided. Policies to improve the availability and quality of transportation infrastructure should help bolster female employment among rural women, especially in non-agricultural sectors.

Second, we highlight that practices of purdah or female seclusion constrain women's ability to pursue job opportunities. The barriers caused by these traditional gender practices have to be addressed for the investment in transportation to effectively improve women's labor force participation. Therefore, in addition to generating industrial and service job positions suitable for women and providing easy transportation to the workplace, policymakers should recognize the importance of fostering a social and cultural environment that allows more women to undertake non-farm jobs.

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